

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of:	§ Group Art Unit: 2181
	§
Jaron Z. Lanier, et al.	§ Examiner: Treat, William M.
	§
	§ Atty. Dkt. No.: 5181-10802
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Serial No. 09/217,595	§
	§
	§
Filed: December 22, 1998	§
	§
For: METHOD AND SYSTEM FOR	§
GENERATING OBJECTS FOR A	§
MULTI-PERSON VIRTUAL	§
WORLD USING DATA FLOW	§
NETWORKS	§

**SUPPLEMENTAL REPLY BRIEF**

**Mail Stop Appeal Brief - Patents**  
Commissioner for Patents  
Washington D.C. 20231

Sir/Madam:

In response to the Supplemental Examiner's Answer mailed November 16, 2006, Appellants present this Supplemental Reply Brief. Appellants respectfully request that this reply brief be entered pursuant to 37 C.F.R. § 41.41 and considered by the Board of Patent Appeals and Interferences.

## **REPLY TO SUPPLEMENTAL EXAMINER'S ANSWER**

Subsequent to the remand by the Board of Patent Appeals and Interferences, the Examiner appears to have withdrawn his rejection of claims 1-30. The only pending rejection is the Examiner's recapture rule rejection of claims 31-94.

The Board of Patent Appeals and Interferences remanded this appeal to the Examiner for reconsideration in view of the precedential decision in *Ex Parte Eggert*, 67 USPQ2d 1716 (Bd. Pat. App. & Inter. 2003). Appellants note that the arguments made in Appellants' previous appeal briefs and reply brief are entirely consistent with the *Eggert* decision. Accordingly, Appellants request the board to fully consider Appellants' arguments presented in the previous briefs.

On pp. 6-9 of the Supplemental Examiner's Answer, the Examiner alleges numerous so-called "surrender-generating limitations" which the Examiner labels Limitation A through Limitation X. The Examiner then alleges on pp. 9-11 that claims 31-94 lack various ones of these so-called "surrender-generating limitations". First, as discussed in Appellant's previous briefs, the limitations listed by the Examiner are not surrender-generating limitations. As discussed in more detail below, the prosecution history of the original application reveals that the focus of Applicants' amendments and arguments was to distinguish from the cited art by further defining the emulating means of claims 1 and 26 and the constructing step of claim 30. Appellants note that independent claims 31, 66, 72, 77, 90 and 94 in the present reissue application all include at least some additional definition of the corresponding emulating or constructing elements beyond what was present in the surrendered claims (i.e. original claims before amendment). For example, all of the independent claims in the present reissue application refer to emulating a body in a three-dimensional environment by changing one or more attributes of a cursor, wherein the cursor comprises a plurality of nodes configured as a point hierarchy. This limitation is clearly germane to the rejection in the original application. Furthermore, this limitation was not present in the surrendered (original) claims. Since the present claims are narrower than the original claims in a

manner germane to the original rejection, the recapture rule does not apply.

Second, while independent claims 31, 66, 72, 77, 90 and 94 may not recite every word of the so-called “surrender-generating limitations” listed by the Examiner, **this Board has rejected such a *per se* rule** in *Ex Parte Eggert*, 67 USPQ2d 1716 (Bd. Pat. App. & Inter. 2003) (precedential). As stated in MPEP 1412.02.I.C:

[I]f the reissue claim recites a broader form of the key limitation added/argued during original prosecution to overcome an art rejection (and therefore not entirely removing that key limitation), then the reissue claim may not be rejected under the recapture doctrine. *Ex Parte Eggert*, 67 USPQ2d 1716 (Bd. Pat. App. & Inter. 2003) (precedential). For example, if the key limitation added to overcome an art rejection was “an orange peel,” and the reissue claim instead recites “a citrus fruit peel”, the reissue claim may not be rejected on recapture grounds.

The Examiner is essentially requiring that every single word added by amendment in the original prosecution be retained in the reissue claims. Such a *per se* rule would foreclose any broadening whatsoever when claims have been amended in the original prosecution. Such a harsh result is clearly not required by the recapture rule. The recapture rule only bars recapture of the original claims (i.e., the claims prior to amendment). The proper question for recapture is “whether the [reissue] claims are of the same scope as the cancelled claims, not whether they lack some specific recitation absent from the cancelled claims but included in the patent claims.” *In re Richman*, 161 USPQ 359, 362 (C.C.P.A. 1969).

The present reissue application falls squarely in to the situation noted in *Richman*, 161 USPQ at 363 in which Applicants erred by amending the claims more narrowly than was necessary: “Certainly one might err without deceptive intention in adding a particular limitation where a less specific limitation regarding the same feature, or an added limitation relative to another element, would have been sufficient to render the claims patentable over the prior art.” *Richman*, 161 USPQ at 363. As shown below, Appellants clearly are not trying to recapture the original claims. Instead, all of claims 31-94 are materially narrower than the original claims.

Independent claims 1, 26 and 30 of the original application were amended during the original prosecution as follows:

1. (Amended) A simulating apparatus comprising:
  - modeling means for creating a model of a physical environment in a computer database;
  - first body sensing means, disposed in close proximity to a part of a first body, for sensing a [the] physical status of the first body part relative to a first reference position;
  - second body sensing means, disposed in close proximity to a part of a second body, for sensing a [the] physical status of the second body part relative to a second reference position;
  - first body emulating means, coupled to the first body sensing means, for creating a first cursor in the computer database, the first cursor including plural first cursor nodes and emulating the physical status of the first body part, the first body emulating means including a first point hierarchy and a first data flow network, the first point hierarchy for controlling a shape and an orientation of the first cursor and for attaching each of the plural first cursor nodes hierarchically with at least one other of the plural first cursor nodes, the first data flow network for controlling motion of the first cursor and the first data flow network including a first interconnection of first input units, first function units and first output units, the first input units receiving the physical status of the first body part, each first function unit including at least one input and at least one output and calculating, based on the at least one input, a value for each of the at least one output, and the first output units for producing position and orientation values for a portion of the plural first cursor nodes;
  - first integrating means, coupled to the modeling means and to the first emulating means, for integrating the first cursor with the model;
  - second body emulating means, coupled to the second body sensing means, for creating a second cursor in the computer database, the second cursor including plural second cursor nodes and emulating the physical status of the second body part, the second body emulating means including a second point hierarchy and a second data flow network, the second point hierarchy for controlling a shape and an orientation of the second cursor and for attaching each of the plural second cursor nodes hierarchically with at least one other of the plural second cursor nodes, the second data flow network for controlling motion of the second cursor and the second data flow network including a second interconnection of second input units, second function units and second output units, the second input units receiving the physical status of the second body part, each second function unit including at least one input and at least one output and calculating, based on the at least one input, a value for each of the at least one output, and the second output units for producing position and orientation values for a portion of the plural second cursor nodes; and

second integration means, coupled to the modeling means and to the second body emulating means, for integrating the second cursor with the model.

26. (Amended) A simulating apparatus comprising:

a modeling means for creating a virtual world model of a physical environment in a computer database;

a first sensor for sensing a first real world parameter;

first emulating means, coupled to the first sensor for emulating a first virtual world phenomenon in the virtual world model, the first emulating means including a first point hierarchy and a first data flow network, the first point hierarchy for controlling a shape and an orientation of a first cursor, including plural first cursor nodes, and for attaching each of the plural first cursor nodes hierarchically with at least one other of the plural first cursor nodes, the first data flow network for controlling motion of the first cursor and the first data flow network including a first interconnection of first input units, first function units and first output units, the first input units receiving the physical status of the first body part, each first function unit including at least one input and at least one output and calculating, based on the at least one input, a value for each of the at least one output, and the first output units for producing position and orientation values for a portion of the plural first cursor nodes;

a second sensor for sensing a second real world parameter; and

second emulating means, coupled to the second sensor, for emulating a second virtual world phenomenon in the virtual world model, the second emulating means including a second point hierarchy and a second data flow network, the second point hierarchy for controlling a shape and an orientation of a second cursor, including plural second cursor nodes, and for attaching each of the plural second cursor nodes hierarchically with at least one other of the plural second cursor nodes, the second data flow network for controlling motion of the second cursor and the second data flow network including a second interconnection of second input units, second function units and second output units, the second input units receiving the physical status of the second body part, each second function unit including at least one input and at least one output and calculating, based on the at least one input, a value for each of the at least one output, and the second output units for producing position and orientation values for a portion of the plural second cursor nodes.

30. (Amended) A simulating method, comprising the steps of:

creating a virtual environment;

[defining nodes of] constructing virtual objects within the virtual environment using a point hierarchy and a data flow network for controlling motion of nodes of the virtual objects wherein the step of constructing includes

attaching each node of the virtual objects hierarchically with at least one other of the nodes to form the point hierarchy, each of the nodes of the virtual objects having a position and an orientation, and

building the data flow network as an interconnection of input units, function units and output units, wherein said input units receive data from sensors and output the received data to at least one of said function units, wherein each of said function units includes at least one input and at least one output, each function unit generating a value for the at least one output based on at least one of data received from at least one of the input units and data received from an output of at least one other of said function units, and wherein the output units generate the position and the orientation of a portion of the nodes of the virtual objects;  
inputting data from sensors worn on bodies of at least two users;  
converting the inputted data to position and orientation [values]

data;

[associating] modifying, by using the data flow network, the position and the orientation [data with said] of the nodes of the virtual objects based on the position and orientation data;

determining view points of said at least two users;

receiving a synchronization signal;

calculating [an] image [frame] frames for each eye of each of said at least two users;

displaying the image frames to each of said eyes of said at least two users;

obtaining updated position and orientation values of said at least two users;

determining if the virtual environment has been modified;

redefining positions and orientations of the nodes of the virtual object [nodes] if the virtual environment has been modified;

recalculating the image frames for each of said eyes of said at least two users; and

displaying the recalculated image [frame] frames to each of said eyes of said at least two users.

Accompanying this amendment, Applicants argued that the Waldren reference did not teach or suggest “the first emulating means including a first point hierarchy and a first data flow network, the first point hierarchy for controlling a shape and an orientation of a first cursor,... [and] the second emulating means including a second point hierarchy and a second data flow network, the second point hierarchy for controlling a shape and an orientation of a second cursor....” See pp. 15-17 of the Amendment filed March 8, 1996, in the original application.

Thus, the prosecution history of the original application reveals that the focus of Applicants' amendments and arguments was to distinguish from the cited art by further defining the emulating means of claims 1 and 26 and the constructing step of claim 30. Appellants note that independent claims 31, 66, 72, 77, 90 and 94 in the present reissue application all include at least some additional definition of the corresponding emulating or constructing elements beyond what was present in the surrendered claims (i.e. original claims before amendment). For example, all of the independent claims in the present reissue application refer to emulating a body in a three-dimensional environment by changing one or more attributes of a cursor, wherein the cursor comprises a plurality of nodes configured as a point hierarchy. **This limitation is clearly germane to the rejection in the original application. Furthermore, this limitation was not present in the surrendered (original) claims.** Since the present claims are narrower than the original claims in a manner germane to the original rejection, the recapture rule does not apply.

The correct claims for comparison when determining if an attempt to recapture subject matter is being made, are represented by claims 1, 26 and 30 of the original application prior to the amendment of March 8, 1996. Thus, the surrendered claims are as follows:

1. A simulating apparatus comprising:
  - modeling means for creating a model of a physical environment in a computer database;
  - first body sensing means, disposed in close proximity to a part of a first body, for sensing the physical status of the first body part relative to a first reference position;
  - second body sensing means, disposed in close proximity to a part of a second body, for sensing the physical status of the second body part relative to a second reference position;
  - first body emulating means, coupled to the first body sensing means, for creating a first cursor in the database, the first cursor emulating the physical status of the first body part;
  - first integrating means, coupled to the modeling means and to the first emulating means, for integrating the first cursor with the model;

second body emulating means, coupled to the second body sensing means, for creating a second cursor in the database, the second cursor emulating the physical status of the second body part; and

second integration means, coupled to the modeling means and to the second body emulating means, for integrating the second cursor with the model.

26. A simulating apparatus comprising:  
a modeling means for creating a virtual world model of a physical environment in a computer database;  
a first sensor for sensing a first real world parameter;  
first emulating means, coupled to the first sensor for emulating a first virtual world phenomenon in the virtual world model;  
a second sensor for sensing a second real world parameter; and  
second emulating means, coupled to the second sensor, for emulating a second virtual world phenomenon in the virtual world model.

30. A simulating method, comprising the steps of:  
creating a virtual environment;  
defining nodes of virtual objects within the virtual environment;  
inputting data from sensors worn on bodies of at least two users;  
converting the inputted data to position and orientation values;  
associating the position and orientation data with said nodes;  
determining view points of said users;  
receiving a synchronization signal;  
calculating an image frame for each eye of each of said users;  
displaying the image frames to each of said eyes of said users;  
obtaining updated position and orientation values of said users;  
determining if the virtual environment has been modified;  
redefining the virtual object nodes if the virtual environment has been modified;  
recalculating the image frames for each of said eyes of said users;  
and  
displaying the recalculated image frame to each of said eyes of said users.

Appellants are clearly not attempting to recapture the surrendered claims. All of the independent claims of the present reissue application are materially narrower than the surrendered claims, and the aspects by which they are broader than the surrendered claims are not material. “[I]f the reissue claim is narrower in an aspect germane to the prior art rejection, and broader in an aspect unrelated to the rejection, the recapture rule does not bar the claim.” *Clement*, 45 USPQ2d at 1165. *See also, Ball*, 221 USPQ 289; *In*



*re Wadlinger*, 181 USPQ 826 (C.C.P.A. 1974); *Richman*, 161 USPQ 359; *In re Willingham*, 127 USPQ 211 (C.C.P.A. 1960).

All of the independent claims in the present reissue application include the material limitation of emulating a body in a three-dimensional environment by changing one or more attributes of a cursor, wherein the cursor comprises a plurality of nodes configured as a point hierarchy. This limitation is similar to the limitation that was argued by Applicants in the amendment of March 8, 1996 after which the application was allowed. Thus, this limitation is clearly material to the original rejection and all of the reissue application claims are clearly more narrow than the surrendered claims in this material aspect. To avoid recapture, the reissue claims only need be narrower in an aspect “germane to the prior art rejection.” *Clement*, 45 USPQ2d at 1165. “Germane” does not mean “exactly the same” as contended by the Examiner. As Judge Rich stated in regard to recapture in *Richman*, 161 USPQ at 363: “Certainly one might err without deceptive intention in adding a particular limitation where a less specific limitation regarding the same feature, or an added limitation relative to another element, would have been sufficient to render the claims patentable over the prior art.” The Examiner is essentially requiring that every limitation added during the original prosecution be retained in its entirety. **Again, such a *per se* rule was explicitly rejected by this Board in *Eggert*.**

Appellants are clearly not attempting to recapture the surrendered claim. All of the independent claims of the present reissue application have been materially narrowed with respect to the surrendered claim. “[I]f the reissue claim is narrower in an aspect germane to the prior art rejection, and broader in an aspect unrelated to the rejection, the recapture rule does not bar the claim.” *In re Clement*, 45 USPQ2d 1161, 1165 (Fed. Cir. 1997). All of the independent claims of the reissue application squarely fall within the case of being materially narrower than the surrendered (original) claims in an aspect germane to the prior art rejection. For example, all of the independent claims in the present reissue application include the material limitation of emulating a body in a three-

dimensional environment by changing one or more attributes of a cursor, wherein the cursor comprises a plurality of nodes configured as a point hierarchy. The independent claims are not broader than the surrendered claim in any aspect germane to the prior art rejection. Thus, recapture does not apply. As stated in MPEP 1412.02.I.C:

[I]f the reissue claim recites a broader form of the key limitation added/argued during original prosecution to overcome an art rejection (and therefore not entirely removing that key limitation), then the reissue claim may not be rejected under the recapture doctrine. *Ex Parte Eggert*, 67 USPQ2d 1716 (Bd. Pat. App. & Inter. 2003) (precedential). For example, if the key limitation added to overcome an art rejection was "an orange peel," and the reissue claim instead recites "a citrus fruit peel", the reissue claim may not be rejected on recapture grounds.

On p. 11 of his Supplemental Answer, the Examiner stresses that the claims are broader than the original patent claims. This again highlights the Examiner's misapplication of the recapture rule. When applying the recapture rule to determine if surrendered subject matter is now being claimed, the reissue application claims are compared to the surrendered claims (i.e. the claims prior to cancellation or amendment during the original prosecution), **not the patent claims**. *Hester Indus., Inc. v. Stein, Inc.*, 46 USPQ2d 1641, 1649 (Fed. Cir. 1998); *Clement*, 45 USPQ2d at 1164-65; *Ball*, 221 USPQ at 295-96; *In re Richman*, 161 USPQ 359, 362-63 (C.C.P.A. 1969) ("The question raised to whether the appealed claims are of the same scope as the cancelled claims, not whether they lack some specific recitation absent from the cancelled claims but included in the patent claims."). The Examiner is essentially arguing for the *per se* rule that was expressly rejected in *Eggert*. **The Examiner's so-called "surrender-generating limitations" were not part of the surrendered claim. Thus, the absence of those limitations from the reissue claims does not constitute a recapture or broadening of the surrendered claim.** Moreover, the reissue claims are materially narrower than the surrendered claim (e.g., by inclusion of the material limitation of emulating a body in a three-dimensional environment by changing one or more attributes of a cursor, wherein the cursor comprises a plurality of nodes configured as a point hierarchy). Thus, there is no recapture. *Ex Parte Eggert*, 67 USPQ2d 1716 (Bd. Pat. App. & Inter. 2003) (precedential)

## **CONCLUSION**

For the foregoing reasons, it is submitted that the Examiner's rejection of the pending claims was erroneous, and reversal of the Examiner's decision is respectfully requested.

No fee should be due; however, if any fee is due, the Commissioner is authorized to charge any such fee to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5181-10802/RCK.

Respectfully submitted,

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